# Intrabodies with defined framework that is stable in a reducing environment and applications thereof

## Cross References to Related Applications

This application claims the priority of PCT patent application IB99;02054, filed December 28, 1999 the disclosure of which is incorporated herein by reference in its entirety.

## Technical Field

The present invention concerns single chain fusions of variable regions of heavy and light chains of an antibody (scFv), in particular such scFv expressed within a cell (intrabodies) with a defined, stable, framework.

## Background Art

Antibodies are preferred tools for biochemical and molecular biology research, diagnostics and medical applications due to their high affinity and specificity to the antigen and due to their relatively high stability in vitro and in vivo. Antibodies are made of two heavy and two light chains, which contain the variable regions at their N-termini and which are linked by disulfide bridges. Single chain antibodies have been engineered by linking fragments of the variable heavy and light chain regions (scFv). Each variable domain contains three complementary determining regions (CDR) embedded in a framework. These CDRs are responsible for the interaction with the antigen. Each variable heavy and light region contains an intradomain disulfide bridge, which was reported to be critical for stability of the single chain antibody (Biocca *et al.*, 1995; Derman *et al.*, 1993).

~~The most commonly used technique to identify single chain antibodies which bind specific epitopes is~~